

## AMENDMENTS TO THE SPECIFICATION

**Please amend the paragraph on page 5, starting on line 29 as follows:**

Figures 4 to 7 represent possible RAM 5 configurations for the communication device.

**Please amend the paragraph on page 7, starting on line 19 as follows:**

The transmitter 1 contains a plurality of QPN channels 3 as shown in Figure 2. These channels are, for example, combined in two sets of four QPN channels (set A and set B) and a set C with only one QPN channel, as shown in Figure 1. Each set has a separate block for generating a PN-code 5 and a separate synchronization hardware 7, which defines a start of symbol transmission. A processor 10 is in data communication with the transmitter 1 and provides operational parameters for the transmitter.

**Please amend the paragraph starting on page 7, line 26 through page 8, line 3 as follows:**

An output of the synchronization hardware 7 goes to the QPN channels of a set and defines a common symbol start moment for all QPN channels in a set. This signal is generated as a selection of one out of a plurality of incoming signals with a programmable offset. The incoming sync channels may, for example, be generated by: another chip, TX timers, receiver pulse, acquisition hardware 9 output, or the like. In certain embodiments, the acquisition unit 9 connects to each synchronization hardware 7. The processor 10 is in data communication with the acquisition unit 9. In one embodiment, a counter at the chip rate may be used to generate the offset. This gives an offset resolution of one 'primary' chip. The range of the offset is [0:65535]. This is sufficient to give an offset of one frame for UMTS (40960 chips).

**Please amend the paragraph starting on page 8, line 10 as follows:**

Input binary symbols coming directly from an interface (symbI 13 and symbQ 14) are spread with PNbits PNbitI and PNbitQ. Each symbol has an activity bit (actI and actQ). When this is 0 the functional spreader output will be 0 instead of +1 or -1. This activity bit is used for burst transmission and for BPSK instead of QPSK/QPN transmission. Signals symbI and actI are



signals at a symbol rate  $fs_{lxx}$ . Signals  $symbQ$  and  $actQ$  are signals at a symbol rate  $fs_{Qxx}$ . The symbol rate  $fs_{lxx}$  may differ from the symbol rate  $fs_{Qxx}$ . The spreading factor is set by a  $sfI$  input 15 and a  $sfQ$  input 16. The spreaders may be (re)started via a sync signal 17 obtained from the acquisition unit 9 via the synchronization hardware 7. A rate  $fcp$  is defined as:  $fcp = fs_{lxx} * sfI = fs_{Qxx} * sfQ$ .

**Please amend the paragraph starting on page 8, line 27 as follows:**

The PN-code generators generate complex PN codes for the QPN channels 3 (Figure 1). A code generator 5 is provided for a set. For example: the PN-code generators 5 for sets A and B generate each four complex codes, while the PN-code generator 6 for set C generates only one complex PN-code. A burst generator 4 is connected to the PN-code generators 5, the PN-code generator 6, and the QPN channels 3. The burst generator 4 provides enabling signals for the code generation. As a function of time, the burst generator 4 specifies for each code when it is "on" (=enabled) and when it is "off" (=not active).

**Please add a new paragraph on page 12 after line 13:**

Combiner 12

A combiner 12 combines the outputs of the scramblers 40 and an output of a combiner 39 for set C by accumulating the signals.

**Please amend the paragraph starting on page 14, line 1 as follows:**

The global receiver structure 43 is shown in Figure 8. The processor 10 is in data communication with the receiver 43 and provides operational parameters for the receiver. All functional blocks are discussed in more detail in the next paragraphs.

**Please amend the paragraph starting on page 15, line 6 as follows:**

The noise estimator 63 (Figure 10) provides a filtered complex noise correlation value which may be read by the microcontroller subsystem such as processor 10. This value could be used for setting thresholds in the acquisition hardware. The noise correlator 65 is just the accumulation of  $NC\_length$  absolute values 64 of the complex input. In this way, an RSSI



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estimation is obtained. The filter is a hardware low-pass filter. By setting the bypass to 1, the low-pass filter may be bypassed.

**Please amend the paragraph starting on page 22, line 5 as follows:**

The incoming chips are descrambled with  $P_{sb}$ . This code and its phase are common for all fingers. The phase has to be set during an acquisition process initializing the Rake via the acquisition unit 9. The descrambler 117 has the same functionality as the other descramblers.

**Please amend the paragraph starting on page 22, line 10 as follows:**

The complex signal coming from the descrambler 117 at the chip rate is despread with the pilot  $P_{ncode}$  ( $P_{cb}$ ), only one despread, so the pilot must be a QPSK or BPSK signal. The pilot  $P_{Ncode}$  has a  $P_{Nlength}$  of  $P_{sf}$ , wherein  $4 \leq P_{sf} < 256$ , and  $k \cdot P_{sf} = 2560$  with  $k$  being a positive integer. The despread 119 works continuously and is synchronized, via the acquisition unit 9, to the slot edge at chip rate. This means that a new symbol starts at the start of the slot ( $slot\_edge=1$ ).

**In the Abstract, on page 34, please delete the following at the bottom of the page:**

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